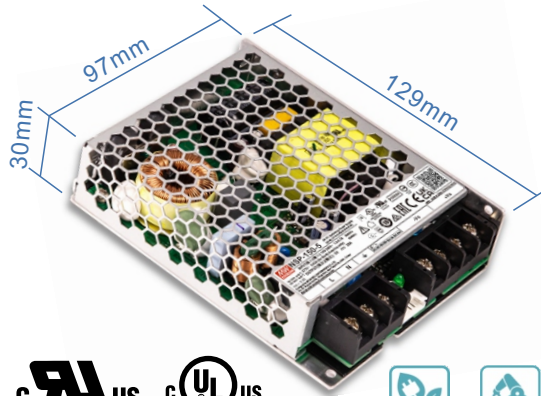




150W AC/DC High Reliable Multi-Industries Enclosed Type Power Supply **NSP-150** series



IEC62368-1
IEC61558-1/2-16
IEC61010-1/2-201
IEC60601-1
IEC60335-1
IEC62477-1



BS EN/EN62368-1
BS EN/EN61558-1/2-16
BS EN/EN61010-1/2-201
BS EN/EN60601-1
BS EN/EN60335-1
BS EN/EN62477-1



UL 62368-1
UL 61010-1/2-201
ANSI/AAMI ES60601-1



LISTED
UL 61010-1



GB4943.1



CNS15598-1



KC62368-1
(By request)



(By request
Note.7)



TPTC004



Features

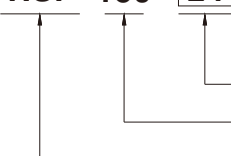
- 85~305Vac input with PFC(277Vac available)
- No load power consumption <0.3W~0.5W by R.C.
- Global certificates in multi-fields
(ITE 62368-1, Medical 60601-1, Household 60335-1, Industrial 61558-1/2-16/61010-1, Energy converter 62477-1)
- 200% peak power capability(12~60V models)
- High efficiency up to 93%
- -40~85°C wide range operation temperature(> +60°C derating)
- Extremely low leakage current<350µA, 2 x MOPP, suitable for BF medical applications
- Built-in constant current limiting circuit
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Fanless design for noise sensitive applications
- Built-in remote ON/OFF control
- Over voltage category III (OVC III)
- Operating altitude up to 5000 meters
- Conformal coating
- 5 years warranty

Description

The NSP-150 series is a 150W AC/DC power supply with PFC function, designed for high reliability and suitable for multiple industries. Key features include: compact size (129*97*30 mm) for better space utilization in system installations, ultra-wide input range of 85~305Vac for global compatibility, up to 93% efficiency and low standby power consumption (<0.3W~0.5W) for energy-saving and carbon reduction, constant current design with 200% peak power capability, fanless design, wide operating temperature range from -40 to +85°C (+60°C at full load), compliance with OVCIII, built-in Remote Control /Remote Sense/DC OK signal, internal PCB coating, complete protections, certifications for multiple safety standards including 62368-1, 60601-1, 61558-1, 60335-1, 62477-1, and 61010-1, as well as 2 X MOPP compliance and extremely low leakage current (<350µA). It is suitable for BF-rated medical equipment and comes with a 5-years warranty, making it a highly cost-effective solution for industrial power supply needs.

Model Encoding

NSP -150 - 24



Output voltage (5V/7.5V/12V/15V/24V/27V/36V/48V/60V)

Output wattage

Series name

Applications

- Industrial automation machinery/control system
- Security system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus
- Network equipment
- Telecom devices
- Power sourcing equipment of PoE
- Home automation
- Medical devices

GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>



150W AC/DC High Reliable Multi-Industries Enclosed Type Power Supply **NSP-150** series

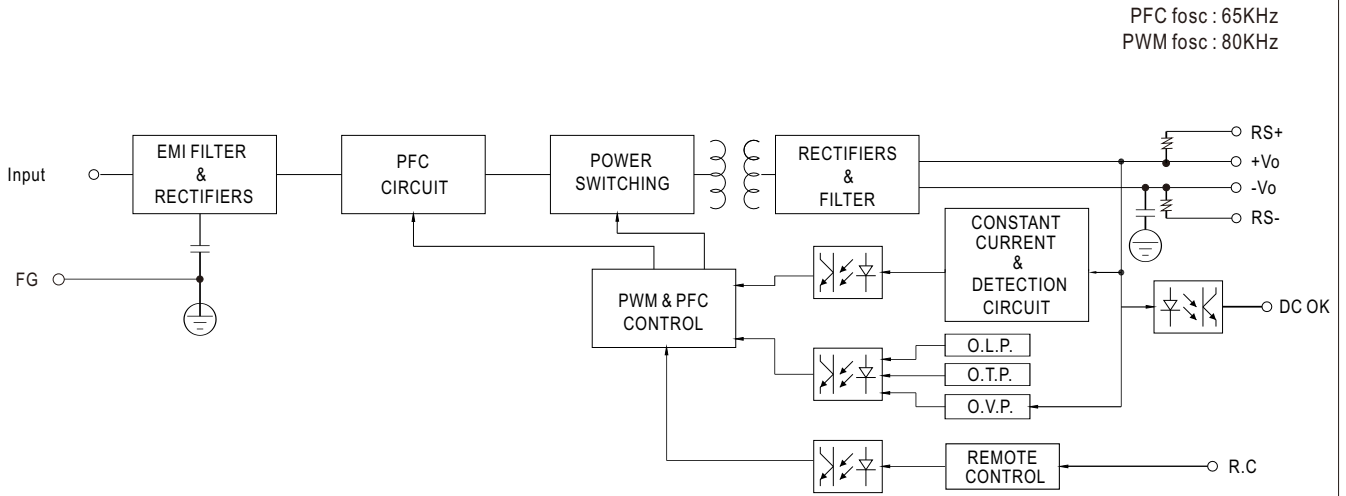
| SPECIFICATION | | NSP-150-5 | NSP-150-7.5 | NSP-150-12 | NSP-150-15 | NSP-150-24 | NSP-150-27 | NSP-150-36 | NSP-150-48 | NSP-150-60 |
|---------------------------------|---|--|-------------|---------------------|------------|---------------------|------------|------------|------------|------------|
| OUTPUT | | | | | | | | | | |
| DC VOLTAGE | | 5V | 7.5V | 12V | 15V | 24V | 27V | 36V | 48V | 60V |
| RATED CURRENT | | 30A | 20A | 12.5A | 10A | 6.3A | 5.6A | 4.2A | 3.15A | 2.55A |
| CURRENT RANGE | | 0 ~ 30A | 0 ~ 20A | 0 ~ 12.5A | 0 ~ 10A | 0 ~ 6.3A | 0 ~ 5.6A | 0 ~ 4.2A | 0 ~ 3.15A | 0 ~ 2.55A |
| RATED POWER | | 150W | 150W | 150W | 150W | 151.2W | 151.2W | 151.2W | 151.2W | 153W |
| PEAK | CURRENT(5 sec.) | N/A | N/A | 25A | 20A | 12.5A | 11.2A | 8.4A | 6.3A | 5.1A |
| | POWER(5 sec.) | N/A | N/A | 300W | 300W | 300W | 300W | 300W | 300W | 300W |
| RIPPLE & NOISE (max.) Note.2 | | 150mVp-p | 150mVp-p | 150mVp-p | 150mVp-p | 200mVp-p | 240mVp-p | 240mVp-p | 240mVp-p | 300mVp-p |
| VOLTAGE ADJ. RANGE | | 4.7 ~ 5.5V | 6.8 ~ 9V | 10.8 ~ 14V | 15 ~ 19V | 21 ~ 26V | 26 ~ 32V | 32 ~ 43V | 44 ~ 57V | 54 ~ 72V |
| VOLTAGE TOLERANCE Note.3 | | ±2.0% | ±2.0% | ±2.0% | ±2.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| LINE REGULATION | | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| LOAD REGULATION | | ±1.0% | ±1.0% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| SETUP, RISE TIME | | 1500ms, 80ms/115Vac | | 1000ms, 80ms/230Vac | | 1000ms, 80ms/277Vac | | | | |
| HOLD UP TIME (Typ.) | | 16ms at full load | | | | | | | | |
| INPUT | | | | | | | | | | |
| VOLTAGE RANGE Note.4 | | 85 ~ 305Vac 120 ~ 431Vdc | | | | | | | | |
| NO LOAD POWER CONSUMPTION(Typ.) | Remote Power OFF | 0.3W/115Vac | | 0.5W/230Vac | | 0.5W/277Vac | | | | |
| | Remote Power ON | 3W/115Vac | | 3W/230Vac | | 3W/277Vac | | | | |
| FREQUENCY RANGE | | 47 ~ 63Hz | | | | | | | | |
| POWER FACTOR (Typ.) | | PF>0.98/115Vac, PF>0.93/230Vac, PF>0.9/277Vac at full load | | | | | | | | |
| EFFICIENCY (Typ.) | | 91% | 91.5% | 93% | 93% | 92% | 92% | 92.5% | 92.5% | 93% |
| AC CURRENT (Typ.) | | 1.55A/115Vac | | 0.75A/230Vac | | 0.63A/277Vac | | | | |
| INRUSH CURRENT (Typ.) | | COLD START 23A/115Vac 45A/230Vac 55A/277Vac | | | | | | | | |
| LEAKAGE CURRENT | | Earth leakage current <350µA(rms)@277Vac, touch current<100µA(rms) @ 277Vac | | | | | | | | |
| PROTECTION | | | | | | | | | | |
| SHORT CIRCUIT | 5V | Hiccup mode, recovers automatically after fault condition is removed | | | | | | | | |
| | 7.5V-60V | Constant current limiting for more than 5 seconds (Vout<30%) and then shut down o/p voltage, AC re-power on to recover | | | | | | | | |
| OVERLOAD | 5V | 105%-170%rated Output power; Hiccup mode, recovers automatically after fault condition is removed | | | | | | | | |
| | 7.5V | 105%~150% rated output power; Constant current limiting for more than 5 seconds and then shut down o/p voltage, AC re-power on to recover | | | | | | | | |
| | 12V ~ 60V | Normally works within 105 ~ 200% rated output power for more than 5 seconds and then constant current limiting without shutdown(Vout>30%), recovers automatically after fault condition is removed, or shut down o/p voltage when Vout<30%,AC re-power on to recover >200% rated power, constant current limiting (Vout>30%)with auto-recovery after fault condition is removed, or shut down o/p voltage when Vout<30%,AC re-power on to recover | | | | | | | | |
| OVER VOLTAGE | 5.8 ~ 7.5V | 9 ~ 13V | 15 ~ 19V | 20 ~ 25V | 28 ~ 36V | 33~ 42V | 44 ~ 54V | 58~ 70V | 73~ 86V | |
| | Protection type : Shut down o/p voltage, re-power on to recover | | | | | | | | | |
| OVER TEMPERATURE | | Shut down o/p voltage, re-power on to recover | | | | | | | | |
| FUNCTION | | | | | | | | | | |
| REMOTE CONTROL | | POWER ON: RC+~RC- 0~0.8Vdc or open POWER OFF: RC+~RC- 3.3~10Vdc by external voltage | | | | | | | | |
| REMOTE SENSE | | Compensate voltage drop on the load wiring up to 0.3V. Please refer to the Function Manual | | | | | | | | |
| DC OK SIGNAL | | By phototransistor, contact rating(max.):15Vdc/10mA resistive load. Please refer to the Function Manual. | | | | | | | | |
| ENVIRONMENT | | | | | | | | | | |
| WORKING TEMP. | | -40 ~ +85°C (Refer to "Derating Curve") | | | | | | | | |
| WORKING HUMIDITY | | 20 ~ 90% RH non-condensing | | | | | | | | |
| STORAGE TEMP., HUMIDITY | | -40 ~ +85°C, 10 ~ 95% RH non-condensing | | | | | | | | |
| TEMP. COEFFICIENT | | ±0.05%/°C (0 ~ 60°C) | | | | | | | | |
| VIBRATION | | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | | | | |



150W AC/DC High Reliable Multi-Industries Enclosed Type Power Supply **NSP-150** series

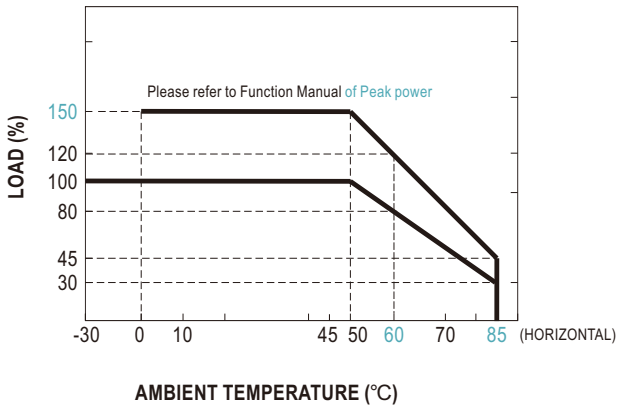
| SAFETY & EMC (Note 5&6) | | | |
|---|---|---|--|
| SAFETY STANDARDS | CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC61010-1/-2-201, IEC60601-1; IEC62477-1 DEKRA BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN61010-1/-2-201, BS EN/EN60601-1(3.2 Version);BS EN/EN62477-1 UL UL62368-1, ANSI/AAMI ES60601-1(3.2 Version),UL61010-1/-2-201 CCC GB4943.1 BSMI CNS15598-1 EAC TP TC 004 SEMI F47 approved; KC/BIS KC 62368-1 and BIS IS 13252(Part 1) certified, no stock by request, contact sales for inquiries | | |
| ISOLATION LEVEL (Note 7) | Primary-Secondary: 2xMOPP , Primary-Earth: 1xMOPP, Secondary-Earth: 1xMOPP | | |
| OVER VOLTAGE CATEGORY (Note 8) | IEC/EN 61558-1/-2-16 (OVC III, altitude up to 2000M) IEC/EN/UL 62368-1 (OVC II, altitude up to 5000M) IEC/EN 60335-1 (OVC II, altitude up to 5000M) IEC/EN/ANSI/AAMI ES60601-1 (OVC II, altitude up to 4000M) IEC/EN/UL 61010-1/-2-201 (OVC II, altitude up to 5000M) IEC/EN 62477-1 (OVC II, altitude up to 5000M) | | |
| SAFETY EXTRA-LOW VOLTAGE(SELV) | IEC/EN 61558-2-16 (SELV, 5 ~ 36V) IEC/EN 60335-1 (SELV, 5 ~ 36V) IEC/EN/UL 62368-1 (SELV/ES1, 5 ~ 36V) | | |
| WITHSTAND VOLTAGE | I/P-O/P: 4.2KVac I/P-FG: 2.1KVac O/P-FG: 1.5KVac | | |
| ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH | | |
| EMC EMISSION | Parameter | Standard | Test Level / Note |
| | Conducted | BS EN/EN55032(CISPR32), CNS 15936, GB/T 9254.1, KS C 9832 | Class B |
| | | BS EN/EN55014-1(CISPR14-1) | |
| | | BS EN/EN55011(CISPR11) | Class B |
| | Radiated | BS EN/EN55032(CISPR32), CNS 15936, GB/T 9254.1, KS C 9832 | Class B |
| | | BS EN/EN55014-1(CISPR14-1) | |
| | | BS EN/EN55011(CISPR11) | Class B |
| Harmonic Current | BS EN/EN61000-3-2(IEC61000-3-2) | Class A | |
| Voltage Flicker | BS EN/EN61000-3-3(IEC61000-3-3) | ----- | |
| EMC IMMUNITY | BS EN/EN55035(CISPR35), BS EN/EN61000-6-2(IEC61000-6-2), BS EN/EN60601-1-2(IEC60601-1-2), BS EN/EN55014-2(CISPR14-2), KS C 9835, SEMI F47 tested at 200Vac | | |
| | Parameter | Standard | Test Level / Note |
| | ESD | BS EN/EN61000-4-2 | Level 4, 15KV air ; Level 4, 8KV contact |
| | Radiated | BS EN/EN61000-4-3 | Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz) |
| | EFT / Burst | BS EN/EN61000-4-4 | Level 3, 2KV |
| | Surge | BS EN/EN61000-4-5 | Level 4, 2KV/Line-Line 4KV/Line-Earth |
| | Conducted | BS EN/EN61000-4-6 | Level 3, 10V |
| | Magnetic Field | BS EN/EN61000-4-8 | Level 4, 30A/m |
| Voltage Dips and Interruptions | BS EN/EN61000-4-11 | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods | |
| OTHERS | | | |
| MTBF | 2159.4 K hrs min. Telcordia SR-332 (Bellcore) ; 258. 3 K hrs min. MIL-HDBK-217F (25°C) | | |
| DIMENSION (L*W*H) | 129*97*30mm | | |
| PACKING | 0.4Kg;30pcs/13Kg/0.76 CUFT | | |
| NOTE | | | |
| 1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor. 3. Tolerance: includes set up tolerance, line regulation and load regulation. 4. Derating may be need under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details. 5. The Regulatory Compliance Mark (RCM) is applied on a voluntary basis. The equipment meets the relevant IEC or AS/NZS standards, or AS/NZS 3820 where applicable. The use of the RCM mark complies with AS/NZS 4417.1. 6. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) 7. Some factory or model may not have the BIS logo, please contact your MEAN WELL sales for more information. 8. MOPP is suitable for 100-240Vac input only 9. The ambient temperature derating of 3.5°C / 1000m with fanless models and 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). ※ Product Liability Disclaimer: For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx | | | |

Block Diagram

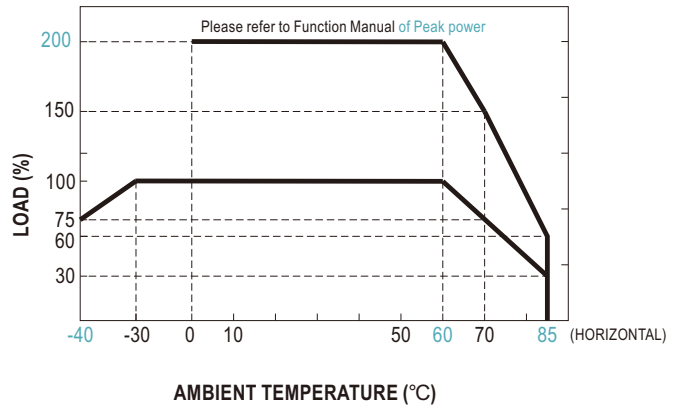


Derating Curve

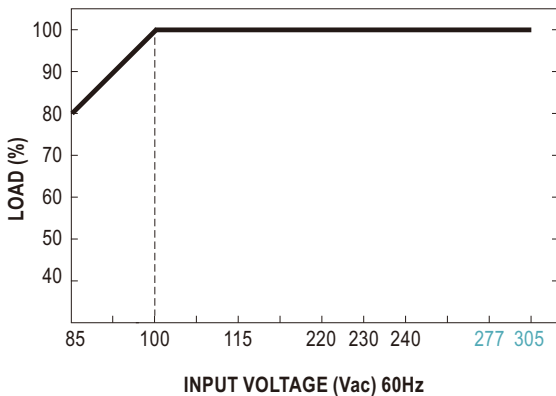
Suitable for 100/110/115/120Vac System (85~135Vac)



Suitable for 220/230/240/277Vac System (180~305Vac)



Output Derating vs Input Voltage



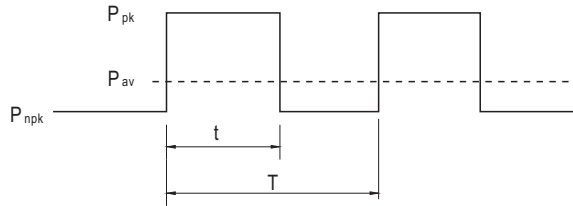
Function Manual

1. Peak Power

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leq P_{rated}$$

$$Duty = \frac{t}{T} \times 100\% \leq 35\%$$

$$t \leq 5 \text{ sec}$$



P_{av} : Average output power (W)

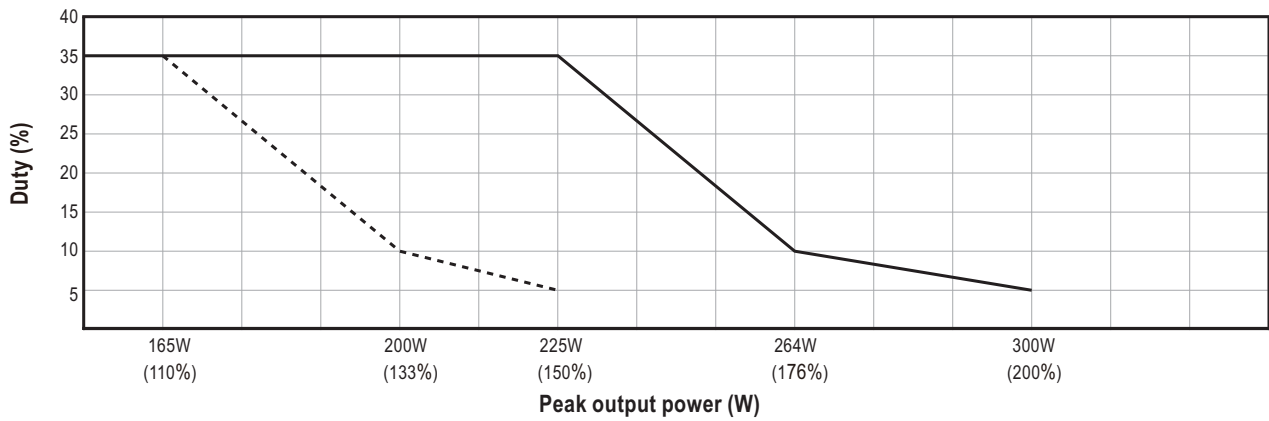
P_{pk} : Peak output power (W)

P_{npk} : Non-peak output power (W)

P_{rated} : Rated output power (W)

t : Peak power width (sec)

T : Period (sec)



For example (24V model) :

$V_{in} = 200Vac$ $Duty_{max} = 5\%$

$P_{av} = P_{rated} = 150W$

$P_{pk} = 300W$

$t \leq 5 \text{ sec}$

$$T \geq \frac{5 \text{ sec}}{5\%} \geq 100 \text{ sec}$$

$$P_{npk} \leq \frac{TP_{av} - tP_{pk}}{T-t}$$

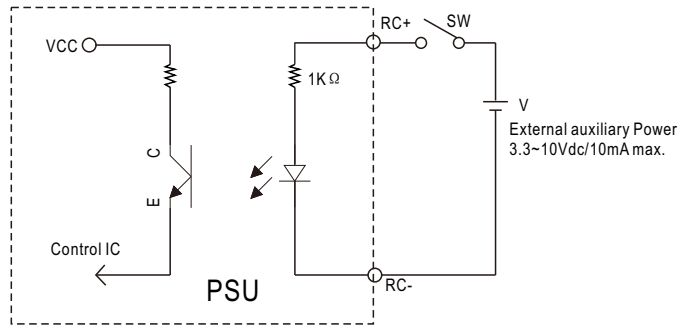
$$P_{npk} \leq 142W$$

Note: When the output voltage is adjusted to the upper limit, the peak power is 150% rated power

2.Remote Control

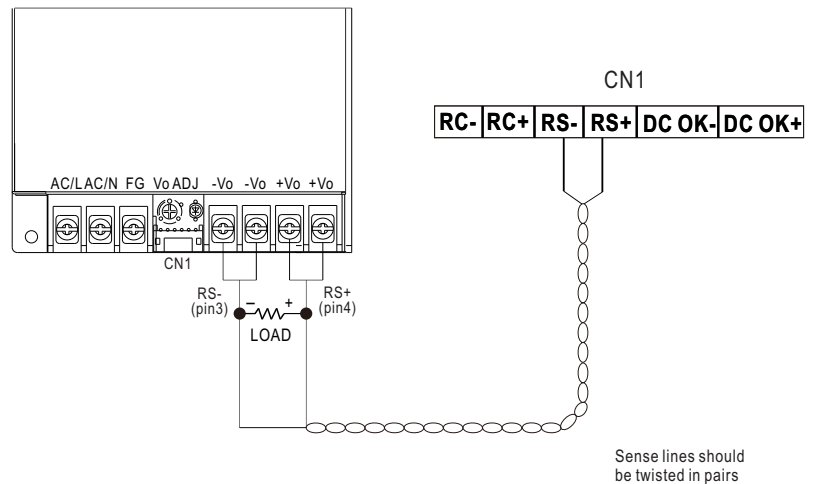
The PSU can be turned ON/OFF by using the "Remote Control" function with external switch and auxiliary power

| | |
|---------------|--|
| PSU Vo Status | Between RC-(pin1) and RC+(pin2) on CN1 |
| POWER ON | Keep 0~0.8Vdc or open |
| POWER OFF | Keep 3.3~10Vdc by external voltage |



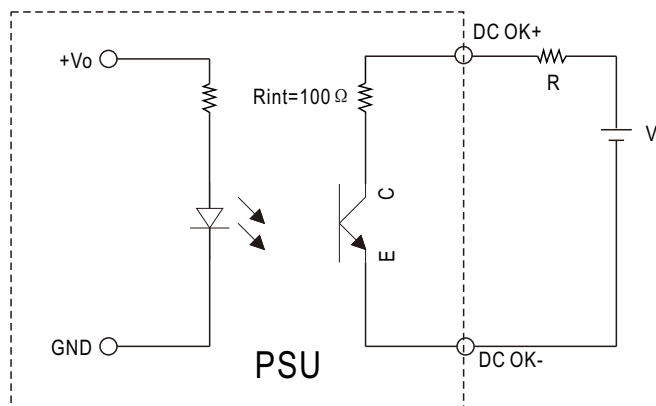
3.Remote Sense

The remote sensing compensates voltage drop on the load wiring up to 0.3Vdc



4.DC_OK signal

※ DC_OK is a collector shorted signal. It is used by an optocoupler in the power supply which indicates the output status of the power supply as exhibited below.



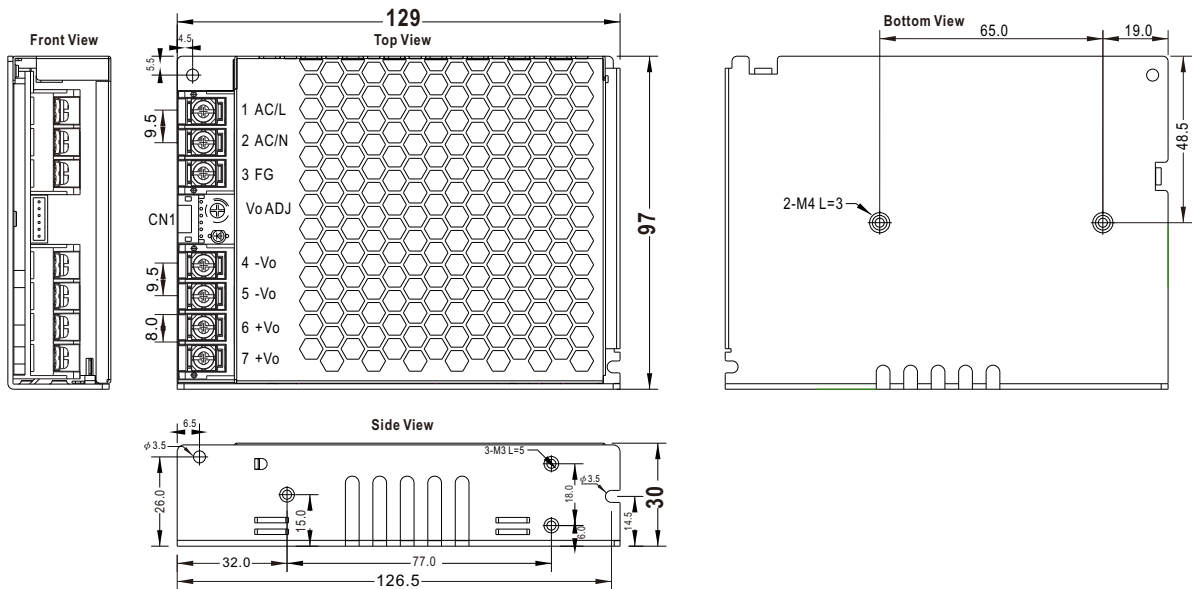
External voltage source(V) and resistor(R)

| | |
|---------------|------------------------|
| PSU Vo Status | Photo transistor |
| POWER ON | Conduct(Low impedance) |
| POWER OFF | Open(High impedance) |

Optocoupler Rating(max.) 15Vdc/10mA resistive load

Mechanical Specification

Case No.308A Unit:mm Tolerance:±1



※ Input Terminal Pin No. Assignment

| Pin No. | Assignment | Diagram | Screw thread | Mounting torque |
|---------|-----------------------|---------|--------------|-----------------|
| 1 | AC/L or DC input +Vin | | M3.5 | 8~10Kgf.cm |
| 2 | AC/N or DC input -Vin | | | |
| 3 | FG \perp | | | |

※ DC Output Terminal Pin No. Assignment

| Pin No. | Assignment | Diagram | Screw thread | Mounting torque |
|---------|------------|---------|--------------|-----------------|
| 4,5 | -Vo | | M3.5 | 8~10Kgf.cm |
| 6,7 | +Vo | | | |

Connector Pin No. Assignment (CN1): DJS-1125R-06 or equivalent

| Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|---------------------------|----------------------------|
| 1 | RC- | JS-11242-06 or equivalent | DJS-1125R-06 or equivalent |
| 2 | RC+ | | |
| 3 | RS- | | |
| 4 | RS+ | | |
| 5 | DC OK- | | |
| 6 | DC OK+ | | |

Accessory List

| No. | Item | Quantity |
|-----|---|----------------|
| 1 | Control function interface(CN1) mating wire along with NSP-150 (standard accessory) | 1pcs/per model |
| 2 | Terminal cover MW'S Order NO. : PEE4TBC-03, PEE4TBC-04 (By request accessory,should ordered separately) | 1pcs/per model |

Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>